

SEQUENCE LISTING

<110> Chisso Corporation
 FUJIMORI KOGYO Co., Ltd.

<120> Thrombin Derivative and Pharmaceutical Composition Containing the Same

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<150> JP 2004-080950
 <151> 2004-03-19

<150> JP 2004-170346
 <151> 2004-06-08

<150> JP 2004-217834
 <151> 2004-07-26

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 <151> 2004-10-29

<150> JP 2005-29360
 <151> 2005-02-04

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<170> PatentIn version 3.1

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ctg gag gac aaa acc gaa aga gag ctc ctg gaa tcc tac atc gac ggc	144
Leu Glu Asp Lys Thr Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly	
35 40 45	
cgc att gtg gag ggc tcg gat gca gag atc ggc atg tca cct tgg cag	192
Arg Ile Val Glu Gly Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln	
50 55 60	
gtg atg ctt ttc cgg aag agt ccc cag gag ctg ctg tgt ggg gcc agc	240
Val Met Leu Phe Arg Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser	
65 70 75 80	
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Leu Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr	

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      100      105      110
ggc aag cac tcc cgc aca agg tac gag cga aac att gaa aag ata tcc    384
Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser
      115      120      125
atg ttg gaa aag atc tac atc cac ccc agg tac aac tgg cgg gag aac    432
Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn
      130      135      140
ctg gac cgg gac att gcc ctg atg aag ctg aag aag cct gtt gcc ttc    480
Leu Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe
      145      150      155      160
agt gac tac att cac cct gtg tgt ctg ccc gac agg gag acg gca gcc    528
Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala
      165      170      175
agc ttg ctc cag gct gga tac aag ggg cgg gtg aca ggc tgg ggc aac    576
Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn
      180      185      190
ctg aag gag acg tgg aca gcc aac gtt ggt aag ggg cag ccc agt gtc    624
Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val
      195      200      205
ctg cag gtg gtg aac ctg ccc att gtg gag cgg ccg gtc tgc aag gac    672
Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp
      210      215      220
tcc acc cgg atc cgc atc act gac aac atg ttc tgt gct ggt tac aag    720
Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys
      225      230      235      240
cct gat gaa ggg aaa cga ggg gat gcc tgt gaa ggt gac agt ggg gga    768
Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly
      245      250      255
ccc ttt gtc atg aag agc ccc ttt aac aac cgc tgg tat caa atg ggc    816
Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly
      260      265      270
atc gtc tca tgg ggt gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc    864
Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe
      275      280      285
tac aca cat gtg ttc cgc ctg aag aag tgg ata cag aag gtc att gat    912
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Leu Ile Ser Asp Arg Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr
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Pro Pro Trp Asp Lys Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile
      100          105          110
Gly Lys His Ser Arg Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser
      115          120          125
Met Leu Glu Lys Ile Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn
      130          135          140
Leu Asp Arg Asp Ile Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe
      145          150          155          160
Ser Asp Tyr Ile His Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala
      165          170          175
Ser Leu Leu Gln Ala Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn
      180          185          190
Leu Lys Glu Thr Trp Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val
      195          200          205
Leu Gln Val Val Asn Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp
      210          215          220
Ser Thr Arg Ile Arg Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys
      225          230          235          240
Pro Asp Glu Gly Lys Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly
      245          250          255
Pro Phe Val Met Lys Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly
      260          265          270
Ile Val Ser Trp Gly Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe
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      20          25          30

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Glu Glu Lys Asn Glu Ser Gly Leu Thr Glu Tyr Arg Leu Val Ser Ile
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 gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag 96
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag 144
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac 192
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc 240
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
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 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
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 130 135 140
 aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc 480
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc 528
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att 576
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190

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gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195                      200                      205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210                      215                      220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225                      230                      235                      240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245                      250                      255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260                      265                      270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275                      280                      285

cga ggg gat gcc tgt gaa ggt gac agt ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly Pro Phe Val Met Lys
      290                      295                      300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305                      310                      315                      320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325                      330                      335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
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Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100     105     110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115     120     125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130     135     140

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Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
          165          170          175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
          180          185          190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195          200          205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
          210          215          220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245          250          255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260          265          270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275          280          285
Arg Gly Asp Ala Cys Glu Gly Asp Ser Gly Gly Pro Phe Val Met Lys
          290          295          300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305          310          315          320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325          330          335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
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gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20          25          30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
          50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
          65          70          75          80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly

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tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg				336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg				
	100	105	110	
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc				384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg				
	115	120	125	
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag				432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys				
	130	135	140	
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc				480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg				
	145	150	155	160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc				528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile				
	165	170	175	
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att				576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile				
	180	185	190	
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac				624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His				
	195	200	205	
cct gtg tgt ctg ccc gag agg gag acg gca gcc agc ttg ctc cag gct				672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala				
	210	215	220	
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg				720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp				
	225	230	235	240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac				768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn				
	245	250	255	
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc				816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg				
	260	265	270	
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa				864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys				
	275	280	285	
cga ggg gat gcc tgt gaa gct gac ggt ggg gga ccc ttt gtc atg aag				912
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys				
	290	295	300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt				960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly				
	305	310	315	320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc				1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe				
	325	330	335	
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag				1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu				
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20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100     105     110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115     120     125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130     135     140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145     150     155     160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165     170     175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180     185     190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195     200     205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210     215     220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225     230     235     240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245     250     255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
260     265     270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
275     280     285
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys
290     295     300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305     310     315     320
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Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
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<210> 9

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<222> (1)..(1056)

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1          5          10          15

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20          25          30

caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35          40          45

tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50          55          60

tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80

gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
          85          90          95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100          105          110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115          120          125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130          135          140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165          170          175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180          185          190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195          200          205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210          215          220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245          250          255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
260          265          270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys

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275	280	285	
cga ggg gat gcc tgt gaa ggt gac gct ggg gga ccc ttt gtc atg aag			912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys			
290	295	300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt			960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly			
305	310	315	320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc			1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe			
	325	330	335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag			1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu			
	340	345	350

<210> 10
 <211> 351
 <212> PRT
 <213> Homo sapiens

<400> 10

Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala	
1	15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln	
20	30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu	
35	45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp	
50	60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr	
65	80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly	
85	95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg	
100	110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
115	125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
130	140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg	
145	160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile	
165	175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
180	190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
195	205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
210	220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
225	240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	
245	255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg	
260	270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys	

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      275              280              285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
 290              295              300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 11
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 11
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1              5              10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115              120              125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130              135              140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145              150              155              160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165              170              175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576

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Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180              185              190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195              200              205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225              230              235              240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
cga ggg gat gcc tgt gaa ggt gac act ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Thr Gly Gly Pro Phe Val Met Lys
      290              295              300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305              310              315              320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 12
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 12
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100     105     110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115     120     125

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Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130          135          140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
          165          170          175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
          180          185          190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195          200          205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210          215          220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245          250          255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260          265          270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275          280          285
Arg Gly Asp Ala Cys Glu Gly Asp Thr Gly Gly Pro Phe Val Met Lys
290          295          300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305          310          315          320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325          330          335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340          345          350

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<210> 13
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 13
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20          25          30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
          50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80

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gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85                      90                      95

tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100                    105                    110

aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115                    120                    125

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130                    135                    140

aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145                    150                    155                    160

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165                    170                    175

tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
      180                    185                    190

gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195                    200                    205

cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210                    215                    220

gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225                    230                    235                    240

aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245                    250                    255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260                    265                    270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275                    280                    285

cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
      290                    295                    300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305                    310                    315                    320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325                    330                    335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340                    345                    350

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<210> 14
<211> 351
<212> PRT

<213> Homo sapiens

<400> 14

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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1           5           10           15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20           25           30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35           40           45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
          50           55           60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70           75           80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
          85           90           95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
          100          105          110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
          115          120          125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
          130          135          140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
          165          170          175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
          180          185          190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195          200          205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
          210          215          220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245          250          255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260          265          270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275          280          285
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
          290          295          300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305          310          315          320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325          330          335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340          345          350

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<210> 15

<211> 1056

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1).. (1056)

<223>

<400> 15

atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct	48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala	
1 5 10 15	
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag	96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln	
20 25 30	
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag	144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu	
35 40 45	
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac	192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp	
50 55 60	
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc	240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr	
65 70 75 80	
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc	288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly	
85 90 95	
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg	336
Ser Asp Ala Glu Ile Gly Met Ser Trp Gln Val Met Leu Phe Arg	
100 105 110	
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc	384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
115 120 125	
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag	432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
130 135 140	
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc	480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg	
145 150 155 160	
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc	528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile	
165 170 175	
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att	576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
180 185 190	
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac	624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
195 200 205	
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct	672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
210 215 220	
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg	720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
225 230 235 240	
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac	768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	
245 250 255	
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc	816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg	
260 265 270	


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atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275                280                285

cga ggg gat gcc tgt gaa ggt gac gtt ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Val Gly Gly Pro Phe Val Met Lys
      290                295                300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305                310                315                320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325                330                335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340                345                350

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<210> 16
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 16
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                10                15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20                25                30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35                40                45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50                55                60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65                70                75                80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85                90                95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100               105               110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115               120               125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130               135               140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145               150               155               160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165               170               175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180               185               190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195               200               205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210               215               220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225               230               235               240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245               250               255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg

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      260      265      270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290      295      300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305      310      315      320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 17
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 17
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
caa gca cgg tgc ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
tac cag act ttc ttc aat ccg agg acc ttt ggc tgc gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
tgt ggg ctg cga cct ctg ttc gag aag aag tgc ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100      105      110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115      120      125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130      135      140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145      150      155      160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile

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      165      170      175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180      185      190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac    624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195      200      205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct    672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210      215      220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg    720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225      230      235      240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac    768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245      250      255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc    816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260      265      270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa    864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285
cga ggg gat gcc tgt gaa ggt gac gat ggg gga ccc ttt gtc atg aag    912
Arg Gly Asp Ala Cys Glu Gly Asp Asp Gly Gly Pro Phe Val Met Lys
290      295      300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt    960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305      310      315      320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 18
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 18
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100      105      110

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Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
    115                120                125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                135                140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
    145                150                155                160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165                170                175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180                185                190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
    195                200                205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210                215                220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
    225                230                235                240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245                250                255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                265                270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
    275                280                285
Arg Gly Asp Ala Cys Glu Gly Asp Asp Gly Gly Pro Phe Val Met Lys
    290                295                300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
    305                310                315                320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                330                335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
    340                345                350

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<210> 19
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 19
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                10                15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                25                30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
                35                40                45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
    50                55                60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240

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file:///I:/Jcla/21671/SequenceListing.htm

<211> 351
 <212> PRT
 <213> Homo sapiens

<400> 20
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
 210 215 220
 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
 225 230 235 240
 Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
 245 250 255
 Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
 260 265 270
 Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
 275 280 285
 Arg Gly Asp Ala Cys Glu Gly Asp Asn Gly Gly Pro Phe Val Met Lys
 290 295 300
 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
 305 310 315 320
 Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
 325 330 335
 Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
 340 345 350

<210> 21
 <211> 1056
 <212> DNA
 <213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

<400> 21
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20          25          30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85          90          95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100          105          110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115          120          125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130          135          140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165          170          175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
180          185          190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195          200          205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210          215          220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg     720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac     768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245          250          255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc     816

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Leu	Pro	Ile	Val	Glu	Arg	Pro	Val	Cys	Lys	Asp	Ser	Thr	Arg	Ile	Arg		
			260					265					270				
atc	act	gac	aac	atg	ttc	tgt	gct	ggg	tac	aag	cct	gat	gaa	ggg	aaa	864	
Ile	Thr	Asp	Asn	Met	Phe	Cys	Ala	Gly	Tyr	Lys	Pro	Asp	Glu	Gly	Lys		
			275					280					285				
cga	ggg	gat	gcc	tgt	gaa	ggg	gac	gct	ggg	gga	ccc	ttt	gtc	atg	aag	912	
Arg	Gly	Asp	Ala	Cys	Glu	Gly	Asp	Ala	Gly	Gly	Pro	Phe	Val	Met	Lys		
			290					295					300				
agc	ccc	ttt	aac	aac	cgc	tgg	tat	caa	atg	ggc	atc	gtc	tca	tgg	ggg	960	
Ser	Pro	Phe	Asn	Asn	Arg	Trp	Tyr	Gln	Met	Gly	Ile	Val	Ser	Trp	Gly		
					310					315					320		
gaa	ggc	tgt	gac	cgg	gat	ggg	aaa	tat	ggc	ttc	tac	aca	cat	gtg	ttc	1008	
Glu	Gly	Cys	Asp	Arg	Asp	Gly	Lys	Tyr	Gly	Phe	Tyr	Thr	His	Val	Phe		
				325						330				335			
cgc	ctg	aag	aag	tgg	ata	cag	aag	gtc	att	gat	cag	ttt	gga	gag	tag	1056	
Arg	Leu	Lys	Lys	Trp	Ile	Gln	Lys	Val	Ile	Asp	Gln	Phe	Gly	Glu			
			340					345						350			

<210> 22
 <211> 351
 <212> PRT
 <213> Homo sapiens

<400> 22

Met	Ala	His	Val	Arg	Gly	Leu	Gln	Leu	Pro	Gly	Cys	Leu	Ala	Leu	Ala		
1			5					10					15				
Ala	Leu	Cys	Ser	Leu	Val	His	Ser	Gln	His	Val	Phe	Leu	Ala	Pro	Gln		
			20					25					30				
Gln	Ala	Arg	Ser	Leu	Leu	Gln	Arg	Val	Arg	Arg	Thr	Ala	Thr	Ser	Glu		
		35				40						45					
Tyr	Gln	Thr	Phe	Phe	Asn	Pro	Arg	Thr	Phe	Gly	Ser	Gly	Glu	Ala	Asp		
		50			55					60							
Cys	Gly	Leu	Arg	Pro	Leu	Phe	Glu	Lys	Lys	Ser	Leu	Glu	Asp	Lys	Thr		
65				70						75				80			
Glu	Arg	Glu	Leu	Leu	Glu	Ser	Tyr	Ile	Asp	Gly	Arg	Ile	Val	Glu	Gly		
			85					90					95				
Ser	Asp	Ala	Glu	Ile	Gly	Met	Ser	Pro	Trp	Gln	Val	Met	Leu	Phe	Arg		
		100						105					110				
Lys	Ser	Pro	Gln	Glu	Leu	Leu	Cys	Gly	Ala	Ser	Leu	Ile	Ser	Asp	Arg		
		115					120					125					
Trp	Val	Leu	Thr	Ala	Ala	His	Cys	Leu	Leu	Tyr	Pro	Pro	Trp	Asp	Lys		
		130				135					140						
Asn	Phe	Thr	Glu	Asn	Asp	Leu	Leu	Val	Arg	Ile	Gly	Lys	His	Ser	Arg		
145				150						155				160			
Thr	Arg	Tyr	Glu	Arg	Asn	Ile	Glu	Lys	Ile	Ser	Met	Leu	Glu	Lys	Ile		
			165					170					175				
Tyr	Ile	His	Pro	Arg	Tyr	Asn	Trp	Arg	Glu	Asn	Leu	Asp	Arg	Asn	Ile		
		180						185					190				
Ala	Leu	Met	Lys	Leu	Lys	Lys	Pro	Val	Ala	Phe	Ser	Asp	Tyr	Ile	His		
		195					200					205					
Pro	Val	Cys	Leu	Pro	Asp	Arg	Glu	Thr	Ala	Ala	Ser	Leu	Leu	Gln	Ala		
		210				215						220					
Gly	Tyr	Lys	Gly	Arg	Val	Thr	Gly	Trp	Gly	Asn	Leu	Lys	Glu	Thr	Trp		
225				230						235				240			
Thr	Ala	Asn	Val	Gly	Lys	Gly	Gln	Pro	Ser	Val	Leu	Gln	Val	Val	Asn		


```

                245                250                255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260                265                270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                275                280                285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
                290                295                300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305                310                315                320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325                330                335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340                345                350

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<210> 23
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 23
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1                5                10                15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20                25                30
caa gca cgg tgc ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
                35                40                45
tac cag act ttc ttc aat ccg agg acc ttt ggc tgc gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
                50                55                60
tgt ggg ctg cga cct ctg ttc gag aag aag tgc ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                70                75                80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85                90                95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100                105                110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                115                120                125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
                130                135                140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145                150                155                160

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```

aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165      170      175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180      185      190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195      200      205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210      215      220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225      230      235      240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245      250      255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260      265      270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285
cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
      290      295      300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305      310      315      320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 24
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 24
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95

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Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115              120              125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130              135              140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145              150              155              160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165              170              175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180              185              190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195              200              205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225              230              235              240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
      290              295              300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305              310              315              320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 25
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 25
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1              5              10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp

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50	55	60	
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc			240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr			
65	70	75	80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc			288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly			
85	90	95	
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg			336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg			
100	105	110	
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc			384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg			
115	120	125	
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag			432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys			
130	135	140	
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc			480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg			
145	150	155	160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc			528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile			
165	170	175	
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att			576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile			
180	185	190	
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac			624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His			
195	200	205	
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct			672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala			
210	215	220	
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg			720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp			
225	230	235	240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac			768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn			
245	250	255	
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc			816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg			
260	265	270	
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa			864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys			
275	280	285	
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag			912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys			
290	295	300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt			960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly			
305	310	315	320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc			1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe			
325	330	335	
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag			1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu			
340	345	350	

<210> 26
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 <212> PRT
 <213> Homo sapiens

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 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
 210 215 220
 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
 225 230 235 240
 Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
 245 250 255
 Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
 260 265 270
 Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
 275 280 285
 Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
 290 295 300
 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
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<213> Homo sapiens

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gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag	96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln	
20 25 30	
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag	144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu	
35 40 45	
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac	192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp	
50 55 60	
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc	240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr	
65 70 75 80	
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc	288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly	
85 90 95	
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg	336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg	
100 105 110	
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc	384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
115 120 125	
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag	432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
130 135 140	
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc	480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg	
145 150 155 160	
aca agg tac gag cga aac att gaa gaa ata tcc atg ttg gaa aag atc	528
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile	
165 170 175	
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att	576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
180 185 190	
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac	624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
195 200 205	
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct	672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
210 215 220	
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg	720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
225 230 235 240	
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac	768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc	245	250	255	816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg				
	260	265	270	
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa				864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys				
	275	280	285	
cga ggg gat gcc tgt gaa gct gac ggg ggg gga ccc ttt gtc atg aag				912
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys				
	290	295	300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt				960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly				
	305	310	315	320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc				1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe				
	325	330	335	
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag				1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu				
	340	345	350	

<210> 28
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 <212> PRT
 <213> Homo sapiens

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 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
 210 215 220
 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp

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225          230          235          240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245          250          255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260          265          270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275          280          285
Arg Gly Asp Ala Cys Glu Ala Asp Gly Gly Gly Pro Phe Val Met Lys
          290          295          300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305          310          315          320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325          330          335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
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<222> (1)..(1056)
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1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
          20          25          30
caa gca cgg tgc ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tgc gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
          50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tgc ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
          85          90          95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
          100          105          110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
          115          120          125
tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
          130          135          140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480

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Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145          150          155          160
aca agg tac gag cga aac att gaa gaa ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
          165          170          175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg aac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
          180          185          190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
          195          200          205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
          210          215          220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225          230          235          240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
          245          250          255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
          260          265          270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
          275          280          285
cga ggg gat gcc tgt gaa gct gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Ala Asp Ala Gly Gly Pro Phe Val Met Lys
          290          295          300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305          310          315          320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
          325          330          335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340          345          350

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<210> 30
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Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
          35          40          45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
          50          55          60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80

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Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
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 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
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 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
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 Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
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 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asn Ile
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 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
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 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
 225 230 235 240
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 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
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 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
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 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
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Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp	
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Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr	
65 70 75 80	
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc	288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly	
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tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg	336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg	
100 105 110	
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Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
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tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag	432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
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aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc	480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg	
145 150 155 160	
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc	528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile	
165 170 175	
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Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
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Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
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cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct	672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
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gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg	720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
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aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac	768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	
245 250 255	
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Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg	
260 265 270	
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa	864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys	
275 280 285	
cga ggg gat gcc tgt gaa gct gac agt ggg gga ccc ttt gtc atg aag	912
Arg Gly Asp Ala Cys Glu Ala Asp Ser Gly Gly Pro Phe Val Met Lys	
290 295 300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt	960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly	
305 310 315 320	
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc	1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe	
325 330 335	
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 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
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 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
 210 215 220
 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
 225 230 235 240
 Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
 245 250 255
 Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
 260 265 270
 Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
 275 280 285
 Arg Gly Asp Ala Cys Glu Ala Asp Ser Gly Gly Pro Phe Val Met Lys
 290 295 300
 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
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<400> 33
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20          25          30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac     192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc     240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc     288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85          90          95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg     336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100         105         110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc     384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115         120         125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag     432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130         135         140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc     480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145         150         155         160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc     528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165         170         175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att     576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180         185         190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac     624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195         200         205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct     672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210         215         220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg     720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225         230         235         240

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aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245      250      255

ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260      265      270

atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285

cga ggg gat gcc tgt gaa ggg gac ggg ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Gly Gly Gly Pro Phe Val Met Lys
      290      295      300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305      310      315      320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335

cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 34
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 34
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100      105      110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115      120      125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130      135      140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145      150      155      160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165      170      175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180      185      190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195      200      205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala

```

```

      210              215              220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
Arg Gly Asp Ala Cys Glu Gly Asp Gly Gly Gly Pro Phe Val Met Lys
      290              295              300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 35
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 35
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1              5              10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115              120              125
tgg gtc ctc acc gcc gcc tcc tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala Ser Cys Leu Leu Tyr Pro Pro Trp Asp Lys

```

```

      130              135              140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145              150              155              160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165              170              175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180              185              190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195              200              205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290              295              300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 36
 <211> 351
 <212> PRT
 <213> Homo sapiens

<400> 36
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60


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Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85          90          95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100         105         110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115         120         125
Trp Val Leu Thr Ala Ala Ser Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130         135         140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145         150         155         160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165         170         175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180         185         190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195         200         205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210         215         220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225         230         235         240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245         250         255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
260         265         270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
275         280         285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
290         295         300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305         310         315         320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
325         330         335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
340         345         350

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<210> 37
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 37
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20         25         30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag     144

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Gln	Ala	Arg	Ser	Leu	Leu	Gln	Arg	Val	Arg	Arg	Thr	Ala	Thr	Ser	Glu		
	35						40					45					
tac	cag	act	ttc	ttc	aat	ccg	agg	acc	ttt	ggc	tcg	gga	gag	gca	gac	192	
Tyr	Gln	Thr	Phe	Phe	Asn	Pro	Arg	Thr	Phe	Gly	Ser	Gly	Glu	Ala	Asp		
	50					55				60							
tgt	ggg	ctg	cga	cct	ctg	ttc	gag	aag	aag	tcg	ctg	gag	gac	aaa	acc	240	
Cys	Gly	Leu	Arg	Pro	Leu	Phe	Glu	Lys	Lys	Ser	Leu	Glu	Asp	Lys	Thr		
	65				70					75				80			
gaa	aga	gag	ctc	ctg	gaa	tcc	tac	atc	gac	ggg	cgc	att	gtg	gag	ggc	288	
Glu	Arg	Glu	Leu	Leu	Glu	Ser	Tyr	Ile	Asp	Gly	Arg	Ile	Val	Glu	Gly		
			85						90				95				
tcg	gat	gca	gag	atc	ggc	atg	tca	cct	tgg	cag	gtg	atg	ctt	ttc	cgg	336	
Ser	Asp	Ala	Glu	Ile	Gly	Met	Ser	Pro	Trp	Gln	Val	Met	Leu	Phe	Arg		
			100					105					110				
aag	agt	ccc	cag	gag	ctg	ctg	tgt	ggg	gcc	agc	ctc	atc	agt	gac	cgc	384	
Lys	Ser	Pro	Gln	Glu	Leu	Leu	Cys	Gly	Ala	Ser	Leu	Ile	Ser	Asp	Arg		
		115					120					125					
tgg	gtc	ctc	acc	gcc	gcc	gcc	tgc	ctc	ctg	tac	ccg	ccc	tgg	gac	aag	432	
Trp	Val	Leu	Thr	Ala	Ala	Ala	Cys	Leu	Leu	Tyr	Pro	Pro	Trp	Asp	Lys		
			130			135					140						
aac	ttc	acc	gag	aat	gac	ctt	ctg	gtg	cgc	att	ggc	aag	cac	tcc	cgc	480	
Asn	Phe	Thr	Glu	Asn	Asp	Leu	Leu	Val	Arg	Ile	Gly	Lys	His	Ser	Arg		
				150						155					160		
aca	agg	tac	gag	cga	aac	att	gaa	gag	ata	tcc	atg	ttg	gaa	aag	atc	528	
Thr	Arg	Tyr	Glu	Arg	Asn	Ile	Glu	Glu	Ile	Ser	Met	Leu	Glu	Lys	Ile		
				165					170					175			
tac	atc	cac	ccc	agg	tac	aac	tgg	cgg	gag	aac	ctg	gac	cgg	gac	att	576	
Tyr	Ile	His	Pro	Arg	Tyr	Asn	Trp	Arg	Glu	Asn	Leu	Asp	Arg	Asp	Ile		
			180					185					190				
gcc	ctg	atg	aag	ctg	aag	aag	cct	ggt	gcc	ttc	agt	gac	tac	att	cac	624	
Ala	Leu	Met	Lys	Leu	Lys	Lys	Pro	Val	Ala	Phe	Ser	Asp	Tyr	Ile	His		
			195				200					205					
cct	gtg	tgt	ctg	ccc	gac	agg	gag	acg	gca	gcc	agc	ttg	ctc	cag	gct	672	
Pro	Val	Cys	Leu	Pro	Asp	Arg	Glu	Thr	Ala	Ala	Ser	Leu	Leu	Gln	Ala		
			210			215					220						
gga	tac	aag	ggg	cgg	gtg	aca	ggc	tgg	ggc	aac	ctg	aag	gag	acg	tgg	720	
Gly	Tyr	Lys	Gly	Arg	Val	Thr	Gly	Trp	Gly	Asn	Leu	Lys	Glu	Thr	Trp		
				230						235				240			
aca	gcc	aac	gtt	ggt	aag	ggg	cag	ccc	agt	gtc	ctg	cag	gtg	gtg	aac	768	
Thr	Ala	Asn	Val	Gly	Lys	Gly	Gln	Pro	Ser	Val	Leu	Gln	Val	Val	Asn		
				245					250				255				
ctg	ccc	att	gtg	gag	cgg	ccg	gtc	tgc	aag	gac	tcc	acc	cgg	atc	cgc	816	
Leu	Pro	Ile	Val	Glu	Arg	Pro	Val	Cys	Lys	Asp	Ser	Thr	Arg	Ile	Arg		
			260					265					270				
atc	act	gac	aac	atg	ttc	tgt	gct	ggt	tac	aag	cct	gat	gaa	ggg	aaa	864	
Ile	Thr	Asp	Asn	Met	Phe	Cys	Ala	Gly	Tyr	Lys	Pro	Asp	Glu	Gly	Lys		
			275				280					285					
cga	ggg	gat	gcc	tgt	gaa	ggg	gac	gcc	ggg	gga	ccc	ttt	gtc	atg	aag	912	
Arg	Gly	Asp	Ala	Cys	Glu	Gly	Asp	Ala	Gly	Gly	Pro	Phe	Val	Met	Lys		
			290			295					300						
agc	ccc	ttt	aac	aac	cgc	tgg	tat	caa	atg	ggc	atc	gtc	tca	tgg	ggt	960	
Ser	Pro	Phe	Asn	Asn	Arg	Trp	Tyr	Gln	Met	Gly	Ile	Val	Ser	Trp	Gly		
				310						315				320			
gaa	ggc	tgt	gac	cgg	gat	ggg	aaa	tat	ggc	ttc	tac	aca	cat	gtg	ttc	1008	
Glu	Gly	Cys	Asp	Arg	Asp	Gly	Lys	Tyr	Gly	Phe	Tyr	Thr	His	Val	Phe		

```

          325          330          335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
          340          345          350

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<210> 38
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 38
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20     25     30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35     40     45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50     55     60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65     70     75     80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85     90     95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100    105    110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115    120    125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130    135    140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145    150    155    160
Thr Arg Tyr Glu Arg Asn Ile Glu Glu Ile Ser Met Leu Glu Lys Ile
165    170    175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180    185    190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195    200    205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210    215    220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225    230    235    240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245    250    255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
260    265    270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
275    280    285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
290    295    300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305    310    315    320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
325    330    335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
340    345    350

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<210> 39
 <211> 1056
 <212> DNA
 <213> Homo sapiens

<220>
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<400> 39
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Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20     25     30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35     40     45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50     55     60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65     70     75     80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85     90     95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100    105    110
aag agt ccc gag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Glu Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115    120    125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130    135    140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145    150    155    160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165    170    175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180    185    190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195    200    205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210    215    220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720

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Gly	Tyr	Lys	Gly	Arg	Val	Thr	Gly	Trp	Gly	Asn	Leu	Lys	Glu	Thr	Trp		
225					230				235						240		
aca	gcc	aac	gtt	ggt	aag	ggg	cag	ccc	agt	gtc	ctg	cag	gtg	gtg	aac	768	
Thr	Ala	Asn	Val	Gly	Lys	Gly	Gln	Pro	Ser	Val	Leu	Gln	Val	Val	Asn		
			245						250					255			
ctg	ccc	att	gtg	gag	cgg	ccg	gtc	tgc	aag	gac	tcc	acc	cgg	atc	cgc	816	
Leu	Pro	Ile	Val	Glu	Arg	Pro	Val	Cys	Lys	Asp	Ser	Thr	Arg	Ile	Arg		
			260					265					270				
atc	act	gac	aac	atg	ttc	tgt	gct	ggt	tac	aag	cct	gat	gaa	ggg	aaa	864	
Ile	Thr	Asp	Asn	Met	Phe	Cys	Ala	Gly	Tyr	Lys	Pro	Asp	Glu	Gly	Lys		
			275				280					285					
cga	ggg	gat	gcc	tgt	gaa	ggg	gac	gcc	ggg	gga	ccc	ttt	gtc	atg	aag	912	
Arg	Gly	Asp	Ala	Cys	Glu	Gly	Asp	Ala	Gly	Gly	Pro	Phe	Val	Met	Lys		
			290			295					300						
agc	ccc	ttt	aac	aac	cgc	tgg	tat	caa	atg	ggc	atc	gtc	tca	tgg	ggt	960	
Ser	Pro	Phe	Asn	Asn	Arg	Trp	Tyr	Gln	Met	Gly	Ile	Val	Ser	Trp	Gly		
305					310				315						320		
gaa	ggc	tgt	gac	cgg	gat	ggg	aaa	tat	ggc	ttc	tac	aca	cat	gtg	ttc	1008	
Glu	Gly	Cys	Asp	Arg	Asp	Gly	Lys	Tyr	Gly	Phe	Tyr	Thr	His	Val	Phe		
				325					330				335				
cgc	ctg	aag	aag	tgg	ata	cag	aag	gtc	att	gat	cag	ttt	gga	gag	tag	1056	
Arg	Leu	Lys	Lys	Trp	Ile	Gln	Lys	Val	Ile	Asp	Gln	Phe	Gly	Glu			
			340					345					350				

<210> 40
 <211> 351
 <212> PRT
 <213> Homo sapiens

<400> 40
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Glu Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His

```

      195              200              205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
  210              215              220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290              295              300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

```

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<210> 41
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 41
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
      5              10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115              120              125

```

```

tgg gtc ctc acc gcc gcc cac tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
   130                      135                      140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
   145                      150                      155                      160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                      165                      170                      175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gcc att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Ala Ile
                      180                      185                      190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
                      195                      200                      205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
   210                      215                      220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
   225                      230                      235                      240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                      245                      250                      255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                      260                      265                      270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
                      275                      280                      285
cga ggg gat gcc tgt gaa ggt gac gct ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
   290                      295                      300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
   305                      310                      315                      320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                      325                      330                      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
   340                      345                      350

```

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<210> 42
<211> 351
<212> PRT
<213> Homo sapiens

```

```

<400> 42
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20     25     30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35     40     45

```

```

Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50          55          60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65          70          75          80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85          90          95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100          105          110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115          120          125
Trp Val Leu Thr Ala Ala His Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130          135          140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
      145          150          155          160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165          170          175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Ala Ile
      180          185          190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195          200          205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210          215          220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225          230          235          240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245          250          255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260          265          270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275          280          285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290          295          300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305          310          315          320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325          330          335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340          345          350

```

```

<210> 43
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 43
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln

```


caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag	144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu	
35 40 45	
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac	192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp	
50 55 60	
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc	240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr	
65 70 75 80	
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc	288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly	
85 90 95	
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg	336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg	
100 105 110	
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc	384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
115 120 125	
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag	432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
130 135 140	
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc	480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg	
145 150 155 160	
aca agg tac gag cga aac att gaa gcc ata tcc atg ttg gaa aag atc	528
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile	
165 170 175	
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att	576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
180 185 190	
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac	624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
195 200 205	
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct	672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
210 215 220	
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg	720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
225 230 235 240	
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac	768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	
245 250 255	
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc	816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg	
260 265 270	
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa	864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys	
275 280 285	
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag	912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys	
290 295 300	
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt	960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly	
305 310 315 320	

```

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325                      330                      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340                      345                      350

```

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<210> 44
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 44
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100     105     110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115     120     125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130     135     140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
145     150     155     160
Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
      165     170     175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180     185     190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195     200     205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210     215     220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225     230     235     240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245     250     255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260     265     270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275     280     285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
290     295     300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305     310     315     320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325     330     335

```

Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
 340 345 350

<210> 45
 <211> 1056
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1).. (1056)
 <223>

<400> 45
 atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct 48
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag 96
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag 144
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 tac cag act ttc ttc aat cgg agg acc ttt ggc tcg gga gag gca gac 192
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc 240
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc 288
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg 336
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc 384
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag 432
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc 480
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
 145 150 155 160
 aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc 528
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att 576
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac 624
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct 672
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala

```

      210      215      220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225      230      235      240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245      250      255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260      265      270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290      295      300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305      310      315      320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 46
<211> 351
<212> PRT
<213> Homo sapiens

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```

<400> 46
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100      105      110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115      120      125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130      135      140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
      145      150      155      160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
      165      170      175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile

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```

      180              185              190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195              200              205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290              295              300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

```

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<210> 47
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 47
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1              5              10              15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20              25              30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35              40              45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65              70              75              80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85              90              95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384

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Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
    115                120                125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag    432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
    130                135                140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc    480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
    145                150                155                160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc    528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
    165                170                175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att    576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
    180                185                190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac    624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
    195                200                205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct    672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
    210                215                220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg    720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
    225                230                235                240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac    768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
    245                250                255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc    816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
    260                265                270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa    864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
    275                280                285
gcc ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag    912
Ala Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
    290                295                300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt    960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
    305                310                315                320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc    1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
    325                330                335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag    1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
    340                345                350

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<210> 48
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20     25     30

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Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
 195 200 205
 Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
 210 215 220
 Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
 225 230 235 240
 Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
 245 250 255
 Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
 260 265 270
 Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
 275 280 285
 Ala Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
 290 295 300
 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
 305 310 315 320
 Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
 325 330 335
 Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
 340 345 350

<210> 49
 <211> 1056
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(1056)
 <223>

<400> 49
 atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15

48

gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln 20 25 30	96
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu 35 40 45	144
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp 50 55 60	192
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr 65 70 75 80	240
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly 85 90 95	288
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg 100 105 110	336
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg 115 120 125	384
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag Trp Val Leu Thr Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys 130 135 140	432
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg 145 150 155 160	480
aca agg tac gag cga aac att gaa tcc ata tcc atg ttg gaa aag atc Thr Arg Tyr Glu Arg Asn Ile Glu Ser Ile Ser Met Leu Glu Lys Ile 165 170 175	528
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile 180 185 190	576
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His 195 200 205	624
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala 210 215 220	672
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp 225 230 235 240	720
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn 245 250 255	768
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg 260 265 270	816
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys 275 280 285	864
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys 290 295 300	912
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt	960

<210>	50
<211>	351
<212>	PRT
<213>	Homo sapiens

file:///I:/Jcla/21671/SequenceListing.htm

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 325 330 335
 Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
 340 345 350

<210> 51
 <211> 1056
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(1056)
 <223>

<400> 51
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 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag 96
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 caa gca cgg tgc ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag 144
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 tac cag act ttc ttc aat ccg agg acc ttt ggc tgc gga gag gca gac 192
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 tgt ggg ctg cga cct ctg ttc gag aag aag tgc ctg gag gac aaa acc 240
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc 288
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg 336
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
 100 105 110
 aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc 384
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag 432
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc 480
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
 145 150 155 160
 aca agg tac gag cga aac att gaa gcc ata tcc atg ttg gaa aag atc 528
 Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
 165 170 175
 tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att 576
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
 180 185 190
 gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac 624
 Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His

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      195              200              205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225              230              235              240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
290              295              300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305              310              315              320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 52
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 52
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
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Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20              25              30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35              40              45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50              55              60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65              70              75              80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85              90              95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
      100              105              110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
      115              120              125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
      130              135              140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145              150              155              160

```

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Thr Arg Tyr Glu Arg Asn Ile Glu Ala Ile Ser Met Leu Glu Lys Ile
      165      170      175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
      180      185      190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195      200      205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210      215      220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225      230      235      240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245      250      255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260      265      270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275      280      285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290      295      300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305      310      315      320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325      330      335
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340      345      350

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<210> 53
<211> 1056
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)..(1056)
<223>

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<400> 53
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1      5      10      15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
      20      25      30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
      35      40      45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
      50      55      60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
      65      70      75      80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
      85      90      95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336

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Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg	
100	105
aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc	384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg	
115	120
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag	432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys	
130	135
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc	480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg	
145	150
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc	528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile	
165	170
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att	576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile	
180	185
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac	624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His	
195	200
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct	672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala	
210	215
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg	720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp	
225	230
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac	768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn	
245	250
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc	816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg	
260	265
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa	864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys	
275	280
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag	912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys	
290	295
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt	960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly	
305	310
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc	1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe	
325	330
gcc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag	1056
Ala Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu	
340	345
	350

<210> 54
 <211> 351
 <212> PRT
 <213> Homo sapiens

<400> 54
 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala

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1           5           10           15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
                20           25           30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
                35           40           45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
                50           55           60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65           70           75           80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
                85           90           95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
                100           105           110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
                115           120           125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130           135           140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145           150           155           160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
                165           170           175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
                180           185           190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195           200           205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210           215           220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225           230           235           240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
                245           250           255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
                260           265           270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
275           280           285
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
290           295           300
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
305           310           315           320
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
                325           330           335
Ala Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
                340           345           350

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<210> 55
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<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
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<223>

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<400> 55
atg gcg cac gtc cga ggc ttg cag ctg cct ggc tgc ctg gcc ctg gct      48
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag      96
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20          25          30
caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag      144
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35          40          45
tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac      192
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50          55          60
tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc      240
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc      288
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85          90          95
tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt ttc cgg      336
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
100         105         110
aag agt ccc gag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc      384
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115         120         125
tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag      432
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
130         135         140
aac ttc acc gag aat gac ctt ctg gtg cgc att ggc gcc cac tcc cgc      480
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145         150         155         160
aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc      528
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
165         170         175
tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att      576
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
180         185         190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
195         200         205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
210         215         220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225         230         235         240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
245         250         255
ctg ccc att gtg gag cgg ccg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
260         265         270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
275         280         285

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cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
   290                295                300

agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
   305                310                315                320

gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
           325                330                335

cgc ctg aag gcc tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Ala Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
           340                345                350

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<210> 56
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 56
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
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Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
           20                25                30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
           35                40                45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
           50                55                60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65                70                75                80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
           85                90                95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Phe Arg
           100                105                110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
           115                120                125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
           130                135                140
Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Ala His Ser Arg
145                150                155                160
Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
           165                170                175
Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile
           180                185                190
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
           195                200                205
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
           210                215                220
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
225                230                235                240
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
           245                250                255
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
           260                265                270
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
           275                280                285

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Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
 290 295 300
 Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
 305 310 315 320
 Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
 325 330 335
 Arg Leu Lys Ala Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
 340 345 350

<210> 57
 <211> 1056
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(1056)
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<400> 57
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 Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
 1 5 10 15
 gcc ctg tgt agc ctt gtg cac agc cag cat gtg ttc ctg gct cct cag 96
 Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
 20 25 30
 caa gca cgg tcg ctg ctc cag cgg gtc cgg cga acc gcc acc agt gag 144
 Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
 35 40 45
 tac cag act ttc ttc aat ccg agg acc ttt ggc tcg gga gag gca gac 192
 Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
 50 55 60
 tgt ggg ctg cga cct ctg ttc gag aag aag tcg ctg gag gac aaa acc 240
 Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
 65 70 75 80
 gaa aga gag ctc ctg gaa tcc tac atc gac ggg cgc att gtg gag ggc 288
 Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
 85 90 95
 tcg gat gca gag atc ggc atg tca cct tgg cag gtg atg ctt gcc cgg 336
 Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Ala Arg
 100 105 110
 aag agt ccc cag gag ctg ctg tgt ggg gcc agc ctc atc agt gac cgc 384
 Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
 115 120 125
 tgg gtc ctc acc gcc gcc gcc tgc ctc ctg tac ccg ccc tgg gac aag 432
 Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys
 130 135 140
 aac ttc acc gag aat gac ctt ctg gtg cgc att ggc aag cac tcc cgc 480
 Asn Phe Thr Glu Asn Asp Leu Leu Val Arg Ile Gly Lys His Ser Arg
 145 150 155 160
 aca agg tac gag cga aac att gaa aag ata tcc atg ttg gaa aag atc 528
 Thr Arg Tyr Glu Arg Asn Ile Glu Lys Ile Ser Met Leu Glu Lys Ile
 165 170 175
 tac atc cac ccc agg tac aac tgg cgg gag aac ctg gac cgg gac att 576
 Tyr Ile His Pro Arg Tyr Asn Trp Arg Glu Asn Leu Asp Arg Asp Ile

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      180              185              190
gcc ctg atg aag ctg aag aag cct gtt gcc ttc agt gac tac att cac      624
Ala Leu Met Lys Leu Lys Lys Pro Val Ala Phe Ser Asp Tyr Ile His
      195              200              205
cct gtg tgt ctg ccc gac agg gag acg gca gcc agc ttg ctc cag gct      672
Pro Val Cys Leu Pro Asp Arg Glu Thr Ala Ala Ser Leu Leu Gln Ala
      210              215              220
gga tac aag ggg cgg gtg aca ggc tgg ggc aac ctg aag gag acg tgg      720
Gly Tyr Lys Gly Arg Val Thr Gly Trp Gly Asn Leu Lys Glu Thr Trp
      225              230              235              240
aca gcc aac gtt ggt aag ggg cag ccc agt gtc ctg cag gtg gtg aac      768
Thr Ala Asn Val Gly Lys Gly Gln Pro Ser Val Leu Gln Val Val Asn
      245              250              255
ctg ccc att gtg gag cgg cgg gtc tgc aag gac tcc acc cgg atc cgc      816
Leu Pro Ile Val Glu Arg Pro Val Cys Lys Asp Ser Thr Arg Ile Arg
      260              265              270
atc act gac aac atg ttc tgt gct ggt tac aag cct gat gaa ggg aaa      864
Ile Thr Asp Asn Met Phe Cys Ala Gly Tyr Lys Pro Asp Glu Gly Lys
      275              280              285
cga ggg gat gcc tgt gaa ggg gac gcc ggg gga ccc ttt gtc atg aag      912
Arg Gly Asp Ala Cys Glu Gly Asp Ala Gly Gly Pro Phe Val Met Lys
      290              295              300
agc ccc ttt aac aac cgc tgg tat caa atg ggc atc gtc tca tgg ggt      960
Ser Pro Phe Asn Asn Arg Trp Tyr Gln Met Gly Ile Val Ser Trp Gly
      305              310              315              320
gaa ggc tgt gac cgg gat ggg aaa tat ggc ttc tac aca cat gtg ttc      1008
Glu Gly Cys Asp Arg Asp Gly Lys Tyr Gly Phe Tyr Thr His Val Phe
      325              330              335
cgc ctg aag aag tgg ata cag aag gtc att gat cag ttt gga gag tag      1056
Arg Leu Lys Lys Trp Ile Gln Lys Val Ile Asp Gln Phe Gly Glu
      340              345              350

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<210> 58
<211> 351
<212> PRT
<213> Homo sapiens

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<400> 58
Met Ala His Val Arg Gly Leu Gln Leu Pro Gly Cys Leu Ala Leu Ala
1          5          10          15
Ala Leu Cys Ser Leu Val His Ser Gln His Val Phe Leu Ala Pro Gln
20          25          30
Gln Ala Arg Ser Leu Leu Gln Arg Val Arg Arg Thr Ala Thr Ser Glu
35          40          45
Tyr Gln Thr Phe Phe Asn Pro Arg Thr Phe Gly Ser Gly Glu Ala Asp
50          55          60
Cys Gly Leu Arg Pro Leu Phe Glu Lys Lys Ser Leu Glu Asp Lys Thr
65          70          75          80
Glu Arg Glu Leu Leu Glu Ser Tyr Ile Asp Gly Arg Ile Val Glu Gly
85          90          95
Ser Asp Ala Glu Ile Gly Met Ser Pro Trp Gln Val Met Leu Ala Arg
100         105         110
Lys Ser Pro Gln Glu Leu Leu Cys Gly Ala Ser Leu Ile Ser Asp Arg
115         120         125
Trp Val Leu Thr Ala Ala Ala Cys Leu Leu Tyr Pro Pro Trp Asp Lys

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